REMARKS

The pending claims in the application are claims 10-24, 27 and 30-34, with claims 10 and 30 being independent. In view of the following comments, reconsideration and allowance are requested.

In the prior Action, claims 10-28 are rejected. In response, claim 10 is amended to recite the steps of supplying the prepolymer formulation to a gap between the shaping roll and backing roll to compress the formulation into cutouts of the shaping roll. Claim 10 is also amended to recite the formulation having a viscosity of 150 to 20,000 mPa.s at 25°C as in original claim 26. Claims 25, 26 and 27 are cancelled.

New claims 30-34 are added to recite additional features of the invention. Independent claim 30 is directed to a process for producing fasteners by supplying a viscous prepolymer formulation onto a backing material, spreading the formulation, compressing the viscous formulation into cutouts of the shaping roll, curing the formulation by irradiation and thereafter removing the interlocking members from the cutouts. Support for claim 30 is found in the original claims, Figure 1 and throughout the specification. The combination of these features are not shown in the cited art.

Claims 31-34 depend from claim 30 to recite additional features of the invention. For example, claim 31 recites applying an excess of the formulation onto the backing material and compressing the formulation into the cutouts. Claim 32 recites spreading the viscous formulation with a doctor blade while claim 33 recites directing the irradiation onto the backing material to cure the viscous formulation in a direction from the base layer toward the tips of the

interlocking members. Claim 34 recites the backing material being a nonwoven fabric or a sheet material. These claims are supported by the specification and drawings as originally filed.

Claims 10-28 are rejected under 35 U.S.C. § 103(a) as being obvious over U.S. Patent No. 6,579,162 to Chesley et al. in view of U.S. Patent No. 5,281,371 to Tamura et al. Chesley et al. is cited for disclosing a process for making fasteners by introducing a flowable resin material into a mold. Chesley et al. is also cited for disclosing radiation polymerizable resins for forming the fasteners. Tamura et al. is cited for allegedly disclosing UV-curable prepolymers. The rejection is based on the position that it would be obvious to use the prepolymers of Tamura et al. in the process of Chesley et al.

Claim 10 as amended is directed to a process for producing cling fasteners by supplying a viscous radiation-cross linkable prepolymer formulation to a forming station compressing the formulation into cutouts in the shaping roll and forming a large number of the interlocking members and subjecting the prepolymer formulation to radiation to cure the formulation. Claim 10 defines the viscous formulation as having a viscosity of 150 to 20,000 mPa.s at 25°C. The claimed combination of the claim features is not disclosed or suggested in the art of record.

As noted in the Action, Chesley et al. does not disclose prepolymers or a prepolymer formulation. Furthermore, Chesley et al. does not disclose a viscous radiation cross linkable prepolymer formulation as claimed or compressing the viscous formulation into cutouts of a shaping roll by backing roll. The passage referred to in the Action describes thermosetting resins that are cured by heating or radiation. Chesley et al. does not disclose any radiation-curable or radiation polymerizable prepolymer compositions having the claimed viscosity. The resins that

are specifically disclosed in Chesley et al. are expressly defined as thermosetting resins and thermoplastic resins.

Chesley et al. refers to the thermosetting resins as being applied to the mold as a liquid which is then polymerized in the mold. The prepolymer formulation of the claimed invention is a viscous flowable material that is compressed into the cutouts of the shaping roll. In the embodiment described in the specification and shown in the Figures and claimed as claim 30, the viscous prepolymer formulation is applied to the backing sheet and then spread across the backing sheet by a doctor blade or knife. The coated backing sheet is then directed to the molding drum so that the prepolymer formulation is pressed into the cavities of the mold where the prepolymer formulation is then cured by radiation. Thus, the radiation-cross linkable prepolymer formulation of the invention is not a liquid that is capable of flowing into the cavities of the mold surface in the same manner of the cited art as suggested in the Action.

Chesley et al. is primarily directed to a method of using a thermoplastic material that is applied to a mold surface to readily flow into the cavities of the mold. The thermoplastic material is then cooled to solidify and form the hooking stems. The stems of the fasteners are cooled from the tip of the stem in the mold surface outwardly to the base of the fastener. In contrast, the fasteners of the invention as recited in claim 30 and claim 33 are formed by curing the prepolymer composition by subjecting the prepolymer composition to radiation. The radiation is directed toward the backing material and toward the tips of the interlocking members. Thus, curing of the prepolymer composition starts at the base and proceeds in the direction of the stems to the tip of the stems within the cavity of the mold. Therefore, the most intensive UV radiation, and most complete polymerization is at the base of the fastener part and not at the

stems. The tips of the stems are subjected to the least amount of the curing radiation. The stems and tips of the fasteners which have a lower degree of curing are additionally stressed as they are removed from the mold cavities.

Tamura et al. is directed to forming thin optical recording media having a thickness of 500 to 5,000 Å and not radiation-cross linkable prepolymers suitable for forming interlocking cling fastener parts. Tamura et al. is cited in the Office Action for disclosing photopolymerizable acrylates. The resin composition, the method of forming the final product, and the final product of Tamura et al. are unrelated to Chesley et al. and unrelated to the claimed invention. The process and materials of Tamura et al. for forming optical recording media has no relation to the process of forming cling fasteners of Chesley et al. and the claimed invention.

As noted in the Action, Tamura et al. applies a liquid resin to a resin sheet and then cures the resin to bond the curable resin to the separate resin sheet. Contrary to the suggestion in the Action, Tamura et al. does not disclose prepolymers or radiation-cross linkable prepolymers. Furthermore, the curing process and the resulting product are unrelated to the claimed invention and unrelated to the method and product of Chesley et al. The textured surface of the recording layer of Tamura et al. provides tracking grooves for optical discs and optical cards. The grooves have a width of 1 to 4 μm, a pitch of 1 to 20 μm, and a depth of 200 to 500Å. See, for example, column 8, lines 35-43 of Tamura et al. The depth of the pattern of 200 to 500Å corresponds to the wavelength of X-rays for 200Å and the wavelength of visible light. Thus, the resulting product has a substantially smooth surface with nanometer size grooves. The process and materials used for producing the nanometer scale layer is completely different from the process and materials used to form interlocking cling fasteners.

The recording material in Tamura et al. is a liquid material that adheres to the surface of the drum as a thin layer and penetrates the nanometer size grooves in the drum by capillary action. The liquid coating does not form a base layer as in the claimed invention. The depth of the patterns formed in the drum enable the liquid resin material to flow into the pattern and form the nanometer size pattern. One skilled in the art would not consider the disclosure of Tamura et al. in making parts having a size several orders of magnitude greater than a recording media.

The Action suggests that Tamura et al. and Chesley et al. are directed to the same problem of preventing the material from running out of the cavities. However, Tamura et al. is not concerned with such a problem since Tamura et al. is directed to a process for forming a very thin recording layer on a resin layer where the recording layer has nanometer size grooves.

Tamura et al. is directed to curing an extremely thin layer of a photocurable resin after it has been removed from the drum and applied to the resin substrate layer. In contrast, the invention of claim 30 requires radiation curing to cure the base layer and the stem of the fastener from the base to the tip of the fastener before removing from the mold cavity. For sufficient curing, the radiation enters the base of the stem and travels through the long thin tubular cutouts forming the mold cavity. The intensity of the radiation has to be sufficient at the end of the mold cavity so that the tips of the fasteners are sufficiently cured. When using UV-curable resins to form the cling fasteners, UV light is scattered and absorbed by the material so that the intensity of the UV light is drastically reduced as the light travels down the length of the stem. Thus, the intensity of the UV light at the tip of the stem may not be sufficient to cure the resin due to the dimensions and length of the stems required for forming cling fasteners. Thus, it is not obvious

to use the photocurable composition of Tamura et al. in the process of Chesley et al. for forming cling fasteners.

In view of the foregoing, it is not obvious to one of ordinary skill in the art to form cling fasteners by shaping a formulation of radiation-cross linkable prepolymers into the interlocking members of an integral formed base and curing the formulation by applying radiation as in claim 10. The cited art does not disclose the claimed viscosity of compressing the viscous formulation into the cutouts of the shaping roll. Accordingly, claim 10 is not obvious over the combination of Chesley et al. and Tamura et al. Claims 11-25 and 27 are also not obvious over the combination of Chesley et al. and Tamura et al. either alone or in combination with the feature of claim 10. For example, Chesley et al. and Tamura et al. do not disclose shaping the fasteners by casting and/or compression molding as in claim 11, the acrylic prepolymers of claim 12, the prepolymers of claims 13 and 14, the reactive diluents of claims 15-17 and 19, and the monofunctional acrylates of claim 18, in combination with the process steps of claim 10. Chesley et al. and Tamura et al. also fail to disclose the electron beam radiation curing of claim 20, the UV-radiation of claim 21, or the photoinitiators of claims 22, 23 and 24, and the viscosity of claim 27 in combination with the features of claim 10.

The cited art fails to disclose steps of applying a viscous formulation to a backing strip, spreading the formulation where the formulation has a viscosity of 150 to 20,000 mPa.s at 25°C, compressing the formulation into the cutouts to form the interlocking members, curing the formulation by irradiation and thereafter removing the interlocking members from the shaping roll, as in claim 30. The cited art further fails to disclose the steps of applying an excess of the formulation to the backing material and compressing the formulation into the cutouts as in claim

31, spreading the formulation with a doctor blade as in claim 32, directing the radiation to the backing material as in claim 33 or the backing material being a nonwoven fabric or sheet material as in claim 34.

In view of the above comments, claims 10-28 are not obvious over the combination of the cited art. Accordingly, reconsideration and allowance are requested.

Respectfully submitted,

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